Science News-Letter

A Weekly Summary of Current Science

EDITED BY WATSON DAVIS

Issued by SCIENCE SERVICE, Inc., 1918 Harford Ave., Baltimore, Md., and 21st and B Sts., Washington, D. C.

Vol. X
No. 290

SATURDAY, OCTOBER 30, 1926

$5 a year
10c. a copy

BIOLOGY

Experiments May Make Oyster Farming Successful

In the future the oysters harvested in this manner may be "planted" much as field crops are planted.

Oyster lovers may have the United States Bureau of Fisheries to thank if this favorite of all sea foods remains on the American menu in the future.

Unknown to the general public, the supply of oysters has been steadily decreasing and has been threatened with actual extinction. Until the last fifty years or so the majority of oysters from Cape Cod to Mexico came from natural oyster beds covering so great an area that they were considered inexhaustible. Already on the New England Coast, where the temperature is about as cold as an oyster can stand, the natural beds are badly depleted or gone. Many of the famous beds of the Chesapeake Bay are now nearly bare, although many still remain.

The taking of oysters from American coastal waters constitutes the most valuable fishery of the United States and one of the greatest of the world. About 30,000,000 bushels are taken up in a year in the United States, or about a peck for every person. Strangely enough, 99 per cent of the oysters used are procured on the Atlantic and Gulf Coasts.

Man is the oyster's greatest enemy. Beds have been poisoned with dirty river water carrying waste from cities and factories, as well as depleted through overfishing by careless oystermen.

Although a single female oyster can produce 16,000,000 eggs in one spawning season, and a few bushel baskets of breeding oysters could therefore supply the whole United States with a season's oysters if every egg grew up properly, they are getting scarcer. Most of the eggs are never fertilized and are therefore lost. Many of those that are fertilized are eaten by larger creatures or never find a place to settle and are swept out to sea or smothered in mud or sand on the bottom.

Because of the possibilities latent in a single oyster, artificial propagation has been the dream of fishermen and scientists alike for nearly half a century. But this method of increasing or even of maintaining the bivalve population has always been a flat failure, and means other than artificial breeding have been resorted to with more success. For the first time since the natural oyster beds disappeared from the coast of Maine and New Hampshire and began to thin out along the Atlantic Coast real hope is now held out for checking this decline.

Dr. Paul S. Galtsoff, of the United States Bureau of Fisheries, has made an intimate study of the private life of the oyster and has found out facts that it is believed will solve the various problems of the oyster industry.

The idea of oyster farming is not a new one. Since the first attempts of Prof. Coste of France over 75 years ago to raise oysters by artificial means many persons have attempted it. Exaggerated stories of immense possible production have led even practical oyster growers astray. Stories of gold mines in oyster beds are not a new thing.

After many years of failure, a method of rearing oysters on the shores of France was developed which is the most perfect and thorough in the world. Adult oysters are placed on oyster beds to spawn. The embryos are collected from the surrounding waters when they are old enough and have attached themselves to objects placed in the water for that purpose. These baby or "seed" oysters are then planted where they have the best chance of growing to maturity and where they are protected from their natural enemies.

The method sounds simple on the surface but it is so full of difficulties that it has been impossible to use it in the United States, partly because of high labor cost and differences in tidal and climatic conditions of coastal waters, as well as physiological peculiarities in the species of oyster.

In the United States attempts have been made ever since 1880 to hatch the oyster eggs in captivity and rear them until they are old enough to be turned out into the world. The re-

(Just turn the page)

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A Weekly Summary of Current Science published by Science Service, Inc., the Institution for the Popularization of Science, organized under the auspices of the National Academy of Sciences, the National Research Council and the American Association for the Advancement of Science.

Publication Office: 1918 Harford Avenue, Baltimore, Md.

Editorial and Executive Office: 21st and B Sts., Washington, D. C.

VOL. X OCTOBER 30, 1926 NO. 290

Entered as second class matter October 1, 1926, at the postoffice at Baltimore; Md., under the Act of March 3, 1879.

Edwin E. Slosson ..... Director
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$5.00 a year, 10c. a copy

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Experiments May Make Oyster Farming Successful

(*Continued*)

sults have been barren, and the reason for the failure is the microscopic size of the oyster embryo, or "spat."

Biologists have studied the habits of the oyster in the hope of overcoming these difficulties. The oyster of commerce in the United States, with the exception of certain West Coast species, is called by scientists "Ostrea virginica." It is a member of a mollusc family popularly known as bivalves because it has two shells or valves which are joined at one end by a hinge.

A dark colored elastic ligament joins the two shells and is so placed as to throw the free ends of the valve somewhat apart when the large muscle of the oyster is relaxed or cut as it is in shucking. One of the two valves is deeper and more cup-shaped than the other, and it is nearly always this shell by which the oyster fastens itself permanently to the hard object on which it spends the rest of its life.

Each shell is lined with a thin membrane called the mantle, which is fringed all around the edge and unattached along the margin. A set of four gills filter the food out of the water which the bivalve drinks for its living. In the center of the oyster is a large muscle which closes the shell tightly when it is contracted. The oyster is held to its shell by this muscle and the mantle.

Microscopic examination of the oyster reveals that the gills are covered on both sides with very fine hairs arranged in rows. These beat back and forth. When the oyster is lying with its shell open they cause a current of sea water to pass through the gills into tubes and thence into a cavity above. As the water passes through the gills the colorless blood of the oyster is aerated. This is how the oyster breathes.

The food of the oyster consists of tiny vegetable and animal organisms. Ordinary sea water is a rich larder for the oyster, and when drawn through the gills the food particles are strained off by a layer of adhesive slime which covers all soft parts of the body. By analyzing the water that passes through the oyster's gills, Dr. Galtsoff found that over 99 per cent of all the diatoms and dinoflagellates that form the oyster's food had been strained out.

The form and general appearance of male and female oysters is so much the same that for a time it was thought that each oyster was at the same time both male and female. But this is not the case.

The female oyster generally spawns when the temperature of the surrounding water reaches 68 degrees Fahrenheit. The true relations between seasons and spawning were accurately determined by Dr. Galtsoff, who found that a sudden increase in the water temperature of 5 degrees inspires the female oyster to lay her eggs. The time of the month or week is not very accurately observed by her if the temperature is pleasing, Dr. Galtsoff found. The male oyster on the other hand yields to two impulses, one being the temperature stimulation and the other the presence of female spawn in the surrounding waters.

The male spermatozoa and the female eggs are so extremely small that a lens must be employed to distinguish one from the other. A female oyster may produce over 16,000,000 eggs, 500 of which laid end to end would make only an inch. The male spermatozoon is smaller yet. When the egg is fertilized in the water by the spermatozoon the single cell of the egg begins to divide into many cells and becomes in the course of five or ten hours an oyster larva. This infant creature swims about the water by means of fine hair on the outside of its body. In about two days a shell begins to grow, and it soon resembles a tiny clam. After several weeks the free roaming stage of the oyster is over. It is now only about one seventy-fifth of an inch long, but it is all ready to take up the serious business of life and settle down to a life on a hard rock or reef or any other place where it can firmly attach itself. Once settled, it loses its power to swim and it never again wanders off of its own accord.

The rate of growth of the oyster varies widely and depends on the temperature and food content of the water, and the time of its birth. In Long Island Sound it takes an oyster about four years to grow four or five inches long, but in southern waters it grows as big as that in two years. If left undisturbed it may grow to eight or ten inches or even more. When crowded together oysters assume abnormal shapes such as the "coon oysters" of the south and eventually the mass becomes so dense that preceding generations are smothered.

Artificial propagation of oysters has been attempted many times. Nearly half a century ago an experimenter

(*Turn to Page 75*)

GENERAL SCIENCE

World Research Up To U. S.

That scientific research in Europe, so long the basis for formulas on which many of our great American industries are founded, has received a great setback is the opinion expressed by Dr. Vernon Kellogg, Secretary of the National Research Council, who has just returned to Washington after several months abroad.

"Europe," said Dr. Kellogg, "has little money for anything but pressing immediate necessities. Germany, France and various other continental countries have for generations led the world in the study of pure science and as scientific research is international every nation, and, more particularly the United States, have profited by the results. Now, by reason of the financial condition of these countries, our source of supply of advanced scientific knowledge has been cut off and scientists must look to the United States to carry on this work which we have been content to leave to Europe in the past. If our industries expect to continue to advance in efficiency we must develop our own research in pure science just as during and after the war we developed sources of supply for many things that we had hitherto imported."

Dr. Kellogg, in addition to being Secretary of the National Research Council, is a trustee of the National Research Endowment of which Herbert Hoover, Secretary of Commerce, is the Chairman, and which is seeking a fund of $20,000,000 to promote and encourage pure science research in this country.

While in Europe Dr. Kellogg visited many of the larger universities, research institutes, scientific libraries and bibliographic services. In almost every instance he was told bluntly that Europe had no money with which to continue the work of scientific research and that if the world's supply of scientific knowledge was to continue to flow it would have to come from America. Even the great industrial laboratories seem to have discontinued all except applied research.

"All human progress," said Dr. Kellogg, "is dependent in the last analysis on the result of the studies of the scientist. But research costs money; a lot of money, and the scientist, if he is to do his best work, cannot be hampered financially. Never before have we been faced with such an imperative need for funds with which to carry on this work and all because we have let Europe do it for us in the past."

Science News-Letter, October 30, 1926

PHYSICS—PHYSIOLOGY

Super-Sound Wrecks Blood Corpuscles

Death to lower, cold-blooded animals, and a marked break-down in the blood of higher forms, have been brought about by means of extremely short and rapid sound waves produced from electrically driven quartz crystals by Prof. R. W. Wood of Johns Hopkins University, who has described the experiments performed by himself and Alfred Loomis of Tuxedo Park, N. Y.

Waves of this character, produced by a different kind of apparatus, were being tried as submarine detectors in France during the World War, when it was noticed that fish in the testing tanks were sometimes killed. When peace brought time for quiet experimentation, Prof. Wood and Mr. Loomis went to work on the problem in the private laboratory which the latter had built on his estate near New York City.

It was found that the microscopic animals that swarm in stagnant water could be quickly killed by a short "raying" with these inaudible sound waves, and that small fish, after a few minutes of convulsive struggle, likewise gave up the ghost.

It was then decided to try the effects of the waves on blood, first outside of the body and then in a living animal.

"Our first experiments were made with human blood, much diluted with water in which a proper amount of salt had been dissolved," Prof. Wood reports. "The number of corpuscles in a cubic millimeter of this solution was determined with a blood-counter, and the solution subjected to the sound wave for a minute. The number of blood corpuscles was found to have been reduced by one half. Another minute's exposure reduced them by about one-third, and another minute by one-quarter, a number being reached at the end of ten minutes beyond which it was impossible to go, even with prolonged treatment. We had started out with 4,000,000 corpuscles, and ended up with 20,000. This decrease in the percentage destruction with increasing time, indicated that the corpuscles varied greatly in their ability to resist the destructive forces of the vibrations, the 20,000 which remained at the end being the tough ones, which would survive any length of treatment with waves of the intensity employed in the experiment.

"We now decided to try the experiment on a small, warm-bloded animal, to see whether the blood corpuscles could be destroyed within the arteries and veins of the animal without other disastrous results. The subject of the experiment was a mouse, swimming about in a small vessel of water which was immersed in the oil bath above the quartz plate. To our surprise the mouse did not show the slightest objection to the treatment, which had appeared to cause the fish considerable annoyance. At the end of five minutes a small drop of blood was taken from the tip of the tail, and the corpuscles counted. A marked decrease in the number was found, and we continued the experiment for fifteen minutes, at the end of which time the mouse was removed from the bath and put back in the cage. He appeared much weakened and very dejected, and his blood count had fallen to nearly one-half of its normal value. At the end of half an hour, however, he appeared quite happy again, and was busy making his toilet with his fore paws.

"Blood counts made on the mouse on succeeding days showed that the return to normal was very rapid. This gives us a means of measuring the rate at which an otherwise healthy animal, in which a condition of extreme anæmia has been produced artificially by purely mechanical means, is able to manufacture and throw into the circulation new blood corpuscles."

Science News-Letter, October 30, 1926

AGRICULTURE—MEDICINE

Fight Quinine Monopoly

South American countries are being urged to produce their own quinine. Malaria still remains such a problem in the Latin Americas that at the Pan American health conference held recently, a movement to encourage cinchona culture as a public health measure was formulated as a resolution to be put up to the different governments.

Though the cinchona tree, from the bark of which the malaria remedy is made, grows wild in Peru, Bolivia, Ecuador and Colombia, quinine is almost absolutely under the control of a Dutch East Indies monopoly. This organization regulates the price and output of the essential drug throughout the world. Cultivation of cinchona trees in the countries where they grow naturally would go far, it is thought, toward supplying the native population with more and cheaper quinine.

Science News-Letter, October 30, 1926

Seven Great Discoveries in Twentieth Century Physics

Extracts from the Terry Foundation Lectures, Yale University, given by Prof. Robert A. Millikan, director of the Norman Bridge Laboratory of Physics, Pasadena, Calif.

Modern science has no one consistent scheme of interpretation of physical phenomena, and has become wise enough to see and admit that it has none. The stupendous blunder of 19th century physics lay in supposing that it had, in a certain sense, reached finality, that it had found a fairly consistent and universally applicable scheme of interpretation of the physical world—a set of laws in conformity with which all phenomena must everywhere take place—a scheme too, which made it unlikely that qualitatively new physical phenomena still remained to be discovered.

There are seven different categories of fundamentally new experimental facts in physics, all of which have been discovered within this single generation—the last thirty years—and the majority of which are inexplicable in terms of nineteenth century modes of thought in physics.

The first of these was the spectacular discovery of X-rays by Roentgen in 1895, a discovery which not only showed how little man knew at that time about ether physics, but which furnished the technique with the aid of which a whole new sub-atomic world—the world of the electron—was brought to light within the next few years.

The second discovery—that of the electron—is probably the most far-reaching one ever made thus far in the history of science though it is not particularly destructive of nineteenth century points of view.

The third new phenomenon was that of radio-activity, which changed man's whole conception of the nature and potentialities of matter. It shattered the nineteenth century notion of a world made up of eternal unchangeable elements, and revealed a dynamic in place of a static universe—a universe living, changing, evolving continuously, even in its chemical elements. Radioactive change is still a mystery inexplicable in terms of the mechanical pictures upon which we set such store in the nineteenth century.

The fourth revolutionary discovery was that of the invalidity of the great nineteenth century principle of the conservation of matter; for not only are there the best of theoretical reasons, due to Einstein, but excellent experimental grounds as well, for now believing that the mass of the stars is actually being transformed into light and heat and radiated away into the outer reaches of space, where who knows but that it may be continually giving birth to new worlds. This last, however, is not yet a discovery—merely an inevitable speculation, stimulated by the discovery of the inter-convertability of matter and radiation.

The fifth new phenomenon is that ether-waves can communicate to electrons which absorb them an energy which is proportional to their frequency, and quite independent of their intensity. This is a phenomenon of exceeding importance and of wide generality but as yet, and probably forever, completely inexplicable in terms of nineteenth century ether physics. It, added to another new set of facts known as the Compton Effect, named from Professor A. H. Compton of the University of Chicago, seems to require that radiant energy, at least when it is of sufficiently short wave length, shoots through space in the form of discrete entities sometimes called "eight-darts." We are in the strange position of having to retain all our ether physics —our wave theory—to explain, or describe, all the old phenomena, but to add to it an entirely unlike theory —a kind of corpuscular theory—to explain the new phenomena.

The sixth discovery has to do with the mechanism of emission of ether waves which we thought in the nineteenth century that we knew quite as much about as we know of the mechanism of emission of sound waves by a tuning fork. Indeed we thought the two mechanisms were essentially the same. Now we know that in some completely mysterious way, in simple atoms like hydrogen the jumping or falling of an electron from one energy level to another gives rise to an emitted ray the frequency of which is proportional to the change of energy which the electron underwent in its jump. We have simply given up the hope of getting any mechanical picture of how it happens. Not only that, but we have recently found that two electrons may jump simultaneously to two new positions inside an atom and integrate the combined energy of the two jumps into a single monochromatic light wave. Indeed, an atom seems to be endowed with the strange power of integrating the energy of an atomic shudder of whatever sort into a monochromatic ether wave. The birth of a light ray as well as its transmission through space is still an event of intense interest to the physicist for the very reason that he knows so little about it—that it baffles description in terms of any sort of a mechanical picture that he can devise.

The seventh discovery constituting twentieth century physics is perhaps the most strikingly revolutionary of them all. It is the discovery that the very foundations of mechanics when looked at microscopically are unsound —the discovery that apparently all periodic motions are resolvable into circular and linear coordinates which cannot progress continuously as demanded by Newtonian laws, but which are built up out of definite unitary elements.

We had not come quite as near sounding the depths of the universe in 1900, even in the matter of fundamental physical principles as we thought we had. Today we can still look out with a sense of wonder and reverence upon the fundamental elements of the physical world as they have been revealed to us in the twentieth century. We know now that the childish mechanical conceptions of the nineteenth century are grotesquely inadequate. We have now no one consistent scheme of interpretation of physical phenomena and we have become wise enough to see and to admit that we have none. We have learned to work with new enthusiasm and new hope and new joy because there is still so much we do not understand and because we have actually succeeded in our life-time in finding more new relations in physics than had come to light in all preceding ages put together, and because the stream of discovery as yet shows no sign of abatement.

Science News-Letter, October 30, 1926

GENERAL SCIENCE

On Fundamentalism

If there be some babblers who, though ignorant of all mathematics, take upon them to judge of these things, and dare to blame and cavil at my work, because of some passage of Scripture which they have wrested to their own purpose, I regard them not, and will not scruple to hold their judgment in contempt.—Copernicus: *De Revolutionibus* (*Dedication to the Pope*).

Science News-Letter, October 30, 1926

Science News-Letter Is Already Indexed

In order to aid in catching the items that concern you and to facilitate clipping and filing, a key word in small capitals has been printed on the right of the line above each article. This follows the classification of the Library of Congress since this system has come into common use in the libraries of the country owing to the publication by the Government of the card index of all new books. We print below a list of the subject titles which will be most used in the SCIENCE NEWS-LETTER. "Outline Scheme of Classes," issued by the Library of Congress and purchasable from the Superintendent of Documents, Washington, for 10 cents, contains a more complete classification.

How To Clip and Classify

The SCIENCE NEWS-LETTER is a "cut-up" periodical. It aims to provide the information you want when and where you want it. It is a continuous loose-leaf supplement to any text-book or encyclopedia. But to make it most useful you must do your part. The best way to handle current news in science is to adopt the rule of the thrifty housewife in fruit season: "Eat what you can and what you can't eat you can."

Here is a good scheme if you haven't a better one. Get a dozen or twenty folders or envelopes which fit in a vertical filing case or drawer. Cut out the class titles of topics and paste on the upper edge of the envelopes. Or write on such titles as you prefer. If you use the Dewey Index or some other system put these numbers or letters in place of the Library of Congress marks.

As soon as you get a copy of SCIENCE NEWS-LETTER look it over, read through such articles as you have time to and cut out such as seem to you worth preserving for reference. Drop the clippings into their proper envelopes right away. Don't throw them into a desk drawer to accumulate until you have time to sort them over. You never will find time for that. At least we hope you will always have something more pleasant and profitable to do than filing a heap of old clippings. SCIENCE NEWS-LETTER is a new sort of magazine. Try a new way of using it.

Classification

B	Philosophy.
BF	Psychology.
G	Geography, voyages, travel.
GA	Mathematical and astronomical geography.
GB	Physical geography.
GC	Oceanology and oceanography.
GF	Anthropogeography.
GN	Anthropology. Somatology. Ethnology. Ethnography. Prehistoric archaeology.
GR	Folklore.
GT	Manners and customs.
GV	Sports and amusements. Games.
HC	Economic history and conditions. National production.
HE	Transportation and communication.
HF	Commerce.
HM	Sociology. General.
L	Education.
M	Music.
N	Fine Arts.
P	Philology and linguistics.
Q	Science. General.
QA	Mathematics.
QB	Astronomy.
QC	Physics.
QD	Chemistry.
QE	Geology.
QH	Natural history.
QK	Botany.
QL	Zoology.
QM	Human anatomy.
QP	Physiology.
QR	Bacteriology.
R	Medicine. General.
S	Agriculture. General.
SB	Field crops. Horticulture. Landscape gardening. Pests and plant diseases.
SD	Forestry.
SF	Animal culture. Veterinary medicine.
SH	Fish culture and fisheries.
SK	Hunting. Game protection.
T	Technology. General.
TA	Engineering — General.
TC	Hydraulic engineering.
TD	Sanitary and municipal engineering.
TE	Roads and pavements.
TF	Railroads.
TG	Bridges and roofs.
TH	Building construction.
TJ	Mechanical engineering.
TK	Electrical engineering and industries.
TL	Motor vehicles. Cycles. Aeronautics.
TN	Mineral industries. Mining and Metallurgy.
TP	Chemical technology.
TR	Photography.
TS	Manufactures.
TT	Trade.
TX	Domestic science.
U	Military science. General.
V	Naval science. General.

PHYSICS

Ether Drift Not Shown

The failure of a tiny mirror, half an inch in diameter, to turn a certain amount when Dr. Carl T. Chase, of the Norman Bridge Laboratory of Physics, Pasadena, was performing an experiment may prove to be strong evidence in support of Einstein's theory of relativity. It differs from results obtained by Dr. Dayton C. Miller which have been interpreted by authorities on the subject as antagonistic to Einstein's ideas.

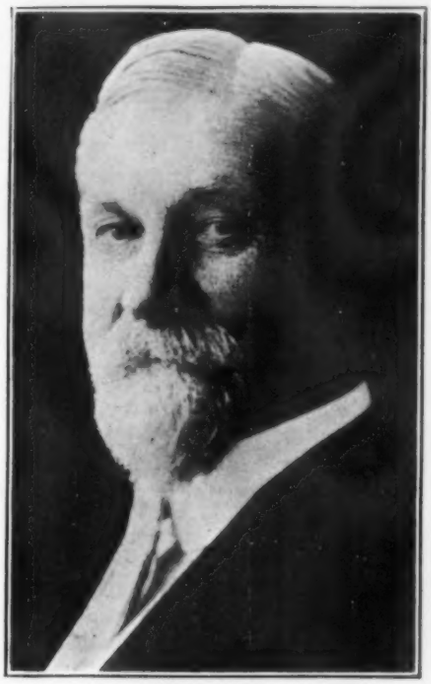
In Dr. Chase's experiment, he repeated one performed by two English physicists about twenty years ago, and which was repeated in Germany within the last two years. According to the older ideas, which relativity has changed, all space is filled with a hypothetical medium called the ether, which is stationary, while the planets, including the earth, and other astronomical objects move through it. If this were the case and a small condenser, similar to that used in radio sets, were on the earth, moving through the ether, and were hung freely so that it could turn, the motion through the ether would tend to twist it. In the previous attempts, no such rotation was found, but the apparatus was not sufficiently free from friction to permit decisive results.

In Dr. Chase's apparatus, the condenser and the mirror are hung on a wire of phosphor-bronze a yard long and a two-thousandth of an inch in diameter. A duplicate of this wire, fastened at the bottom, provides the other connection, while the condenser itself is enclosed in a steel cylinder nine inches high, 3½ inches in diameter, with wall ⅝ of an inch thick. Long brass tubes from the top and bottom contain the supporting wires. The steel cylinder prevents heat currents within and electrical disturbances from without. The condenser was about an eighth of an inch thick, weighed about a third of an ounce and had a capacity of .04 microfarad.

To make the observations, readings had to be taken of the apparatus, by means of light reflected from the tiny mirror, every five minutes for twenty-four hours at a stretch. No evidence of any turning corresponding to a motion of the earth through the ether was found, says Dr. Chase, even though he has estimated his apparatus delicate enough to have detected a motion of 2½ miles a second, much less than the motion was supposed to be.

Science News-Letter, October 30, 1926

GEOLOGY



THOMAS CHROWDER CHAMBERLIN

A Modern Cosmologist

It has been given to very few men to compose cosmogonies. Six or eight thousand years ago there was a man in Mesopotamia who wrote the first one we know about, and one version of this survived as the standard account of the making of the universe until Laplace thought up one that agreed better with facts that had been learned in the meantime. Laplace belonged to the time of our great-grandparents. His theory was not so fortunate as that of his great unknown predecessor, for within our own time and in our own country arose a still newer theory that most geologists now agree fits the facts even better than did the Laplacian hypothesis.

T. C. Chamberlin, Emeritus Professor of Geology at the University of Chicago, who with Prof. F. R. Moulton gave to the world the planetesimal theory of its origin, has most fortunately multiplied his days, for he was eighty-three years old last month. His life has passed mainly in the beautiful country around Lake Michigan, for he was born in Mattoon, Illinois, and his early studies were conducted at Beloit College and the University of Michigan. His professional work kept him in Wisconsin most of the time until 1892, but when President Harper went out gathering giants for the then new University of Chicago he called Dr. Chamberlin to become head of his department of geology.

Science News-Letter, October 30, 1926

ASTRONOMY

Comet Reappears

Giacobini's comet, which returns to the vicinity of the earth every six and two-thirds years, has come back again, according to Dr. Harlow Shapley, director of the Harvard College Observatory, and the place where it was found was very close to the position predicted for it more than a year ago by Dr. A. C. D. Crommelin, of the Royal Observatory, Greenwich, England. The difference between the predicted and the observed place of the comet was about the diameter of the full moon.

According to the word received by Dr. Shapley from the International Bureau of Astronomical Telegrams at Copenhagen, Denmark, the comet was discovered on Saturday, October 16, by Dr. A. Schwassmann, astronomer at the Bergedorf Observatory near Hamburg, Germany. At that time it was in the constellation of Ophiucus, which can now be seen in the western sky shortly after sunset. The position of the comet, expressed in the celestial equivalent of latitude and longitude, was then 17 hours, 24 minutes, 52 seconds right ascension and 2 degrees, 32 seconds north declination. It is moving to the southeast, but is of the 14th magnitude, too faint to be seen except with a large telescope, and will probably not become bright enough to see without optical aid.

Science News-Letter, October 30, 1926

GENERAL SCIENCE

The Dangers of a Fallacy

It is terrible to see how a single unclear idea, a single formula without meaning, lurking in a young man's head, will sometimes act like an obstruction of inert matter in an artery, hindering the nutrition of the brain, and condemning its victim to pine away in the fullness of his intellectual vigor and in the midst of intellectual plenty. Many a man has cherished for years as his hobby some vague shadow of an idea, too meaningless to be positively false. He has, nevertheless, passionately loved it, has made it his companion by day and by night, and has given to it his strength and his life, leaving all other occupations for its sake, and, in short, has lived with it and for it, until it has become, as it were, flesh of his flesh and bone of his bone; and then he has waked up some bright morning to find it gone, clean vanished away like the beautiful Melusina of the fable, and the essence of his life gone with it.—*Charles Sanders Peirce.*

Science News-Letter, October 30, 1926

Ancient man in Indo-China domesticated the chicken, peacock, buffalo, elephant, and zebu.

A frog which does not pass through the tadpole stage has been found on the Island of Dominica.

More automobile crashes are caused by contests for the right of way than by any other condition.

The Romans apparently did not decorate their sculptures with colors as the Greeks so often did.

The diplodocus, one of the ancient and extinct dinosaurs, grew to be 87 feet long from head to tail.

Some ground squirrels in Yellowstone Park spend over half the year in a continuous winter sleep.

Cows fed on green hay are healthier than cows fed on brown hay, according to recent experiments.

Prehistoric horses in North America are believed to have become extinct more than 50,000 years ago.

The sting of the tarantula has proved, upon scientific investigation, to be no worse than a bee sting.

In a British government experiment, 50 gallons of alcohol for power were produced from one ton of straw.

The smallest area that can be detected with present microscopes would be big enough to be paved with 30,000 atoms.

The ancient towns of Haifa and Tiberias, in Palestine, are lighted electrically from generators driven by oil engines.

From the beginning of historic times the three types of man, Nordic, Alpine and Mediterranean, were already well defined.

Nearly 500,000 people live in the Sahara desert.

Beavers are rapidly being exterminated in Oregon.

Concrete was used in building the Roman Coliseum.

A barn owl makes a valuable mouse catcher for any farm.

Finger nails grow more rapidly in summer than in winter.

Goethe studied the Persian language at the age of 65.

Some orchids give off different scents by day and night.

Sardine oil is extensively used in making paints and soap.

Some Indian tribes used arbutus as a remedy for rheumatism.

Eggs for market can now be dry cleaned with a sand blast.

The first wheat harvest was gathered over 10,000 years ago.

The most difficult sounds to hear correctly are f, s, th, and v.

A bushel of wheat needs almost a pound of nitrogen for its growth.

The folding pocket knife dates from 500 years or more before the Christian era.

Indians in Panama make torches of candlenuts which are strung on slivers of palm wood.

Rerouting of street cars in Los Angeles has eliminated 900 turns per day in a congested area.

How much water different trees drink is being measured in a series of experiments which are to last four years.

STUDY HELPS FOR SCIENCE CLASSES

(These articles will be found to be especially useful in class work.)

GENERAL SCIENCE

World Research Up to United States, p. 67. A Modern Cosmologist, p. 71. Everybody's Pets, p. 75. Science or Sciences?, p. 77. Articles marked with * in classification below.

HYGIENE

Curing Sick with Song,* p. 73. Hygiene Is World Force, p. 73.

CHEMISTRY

Seven Great Discoveries, p. 69.

BIOLOGY

Oyster-Farming,* p. 65. Super-Sound Wrecks Blood Corpuscles,* p. 67. Man-Eating Lions, p. 73. Everybody's Pets, p. 75. Hog Cholera Epidemic,* p. 79.

PHYSICS

Super-Sound Wrecks Blood Corpuscles,* p. 67. Seven Great Discoveries, p. 69. Ether Drift Not Shown, p. 71.

(This will fit on a 3 x 5 card.)

ETHNOLOGY

Curing Sick With Song

Indian medicine men of British Columbia consider material remedies good enough for bruises, small cuts, and other minor ailments, but when a patient is really ill they get out their most potent "medicine," which is music. And the sicker the patient, the more singers should be called in to help the doctor and add to his power.

This important role of singing in the treatment of the sick by tribes of western Canada is reported by Miss Frances Densmore, who has just recorded for the U. S. Bureau of Ethnology 120 songs from Indians living in 16 different localities of British Columbia.

Each autumn, hundreds of Indians from all over British Columbia are brought to the hop fields along the Fraser River valley to work at gathering the hop harvest. Miss Densmore took advantage of this unusual gathering of tribes to bring her phonograph in order to preserve and compare their songs. This enabled her to interview the singers from among over 1,000 Indians, representing a number of tribes.

"British Columbia is so very large and diversified," she stated on returning to her home here, "that I secured songs about the whale, seal, and shark from Indians living by the ocean, and songs about the mountain goat and deer from inland tribes. I have songs from the west coast of Vancouver Island, and others from Indians living along the Fraser, Thompson, Skeena, and Nass Rivers."

Miss Densmore was particularly sucessful in recording songs from medicine men of the tribes.

"I find that here, as in tribes which I have studied in other regions, music is essential to the treatment of the sick," she said. In these tribes, as in others, the doctor sings of the source of his power and affirms the recovery of the patient. One song, for example, says, 'You will be cured, the whale is going to help me cure you'."

The ethnologist spent the early part of the summer at Neah Bay, where she continued her work of recording songs of the Makah Indians, famous whale hunters of the northwest. She also visited Cape Flattery to record songs of the Quileute, said to be the most successful hunters of the hair seal.

Science News-Letter, October 30, 1926

The ostrich is the largest bird in existence.

Science News-Letter, October 30, 1926

GEOGRAPHY—PSYCHOLOGY

Mirages of the Mind

Long before the discovery of the New World, it was believed that new lands in the far West might be seen from the shores of the Canaries and the Azores. These illusive images were owing not to any extraordinary refraction of the rays of light, but produced by an eager longing for the distant and the unattained. The philosophy of the Greeks, the physical views of the Middle Ages, and even those of a more recent period have been eminently imbued with the charm springing from similar illusive phantoms of the imagination. At the limits of circumscribed knowledge, as from some lofty island shore, the eye endeavors to penetrate to distant regions. The belief in the uncommon and the wonderful lends a definite outline to every manifestation of ideal creation; and the realm of fancy—a fairyland of cosmological, geological and magnetic visions—becomes thus involuntarily blended with the domain of reality.—Humboldt: *Cosmos.*

Science News-Letter, October 30, 1926

BIOLOGY

Man-Eating Lions

Man-eating lions in Uganda, Africa, are becoming so numerous and are causing so many deaths that worried officials believe that the lions are hereditary man-killers.

A report from the chief game warden of Uganda says that the lions about the town of Sanga, which is near Lake Victoria, are very different from ordinary man-killers. Such beasts are usually old and have bad teeth and other defects which prevent them from hunting their natural prey.

The lions about Sanga, however, were strong breeding animals that suddenly found themselves without food through the destruction by the rinderpest of game animals. The desperate lions swooped down on cattle. Somehow they tasted human blood, and the desire for it spread quickly through the race.

"When lions collectively take to man-killing, the taint in their blood is naturally passed on to their offspring," the game warden states, "though the new generations may not necessarily display man-killing tendencies from birth. The taint, however, is lying dormant, awaiting an opportunity to display itself."

The report says that one lion alone has been responsible for 84 deaths, and another had more than 40 human kills to its credit before it was destroyed.

Science News-Letter, October 30, 1926

MEDICINE

Hygiene Is World Force

Hygiene is one of the most potent powers to promote world peace, Dr. Andrew Balfour, director of the London School of Hygiene and Tropical Medicine declared in dedicating the new building of the Johns Hopkins School of Hygiene and Public Health on October 23. The word "Health," he pointed out, had proved a talisman that had unlocked many foreign doors to the International Health Board of the Rockefeller Foundation in their efforts to eradicate yellow fever and hookworm.

Hygiene is a world force comparable with the pursuit of wealth and the quest for knowledge, stated Dr. Balfour. The epidemiology service of the Health Section of the League of Nations that keeps a watchful eye by wireless on the plague spots of the world, the world wide consideration of quarantine measures, the tremendous sanitary feats accomplished by Great Britain in her over-seas possessions, the similar labors of the Dutch in the East Indies and France in her colonies, were illustrative high lights cited by the eminent British medical leader.

He stressed, as well, the influence of religion on hygiene saying that probably one reason it had done so much for the world was because it was in itself a form of religion. He suggested that hygienic measures would probably never make much progress among the vast populations of India until they came as a part of a new revelation.

"When another fifty years have passed," declared Dr. Balfour, "there can be no doubt that the school which you are opening today and dedicating to Hygeia will also possess a record of which it can be proud, which will redound to the credit of those who guided its early destinies and, what is far better, will demonstrate conclusively the power of modern scientific hygiene in the prevention of sickness and death and in the alleviation of many of the sorrows of mankind."

Science News-Letter, October 30, 1926

Tokio school children are taught to operate automatic telephones by portable systems installed in the public schools.

There is a lake in Alaska where it is possible to get a bath at any desired temperature, merely by swimming about a few strokes.

Science News-Letter, October 30, 1926

Experiments May Make Oyster Farming Successful

(*Continued from Page* 66)

succeeded in artificially fertilizing spawn from the female oyster with spermatozoa taken from the male, and in rearing some of the baby oysters to the age of four or five days. It was, however, extremely difficult to maintain the microscopic oyster larvae in tanks and at the same time have the water continually running as is necessary in order to supply food for the tiny creatures and take away the waste. In fact neither this pioneer investigator nor anyone else since has succeeding in rearing them to an age where they are ready to settle down and grow up.

The only method of increasing the oyster supply in the United States that has been at all successful is that of catching the young free-swimming oysters at the time when they are just ready to "set" and then transplanting them where they will develop best. The work of Dr. Galtsoff, it is believed, will give this old method a new impetus.

In order to find out the best ways of increasing the natural supply of oysters, Dr. Galtsoff experimented at Milford Harbor in Connecticut, which is typical of the coves and bays where oysters were found in great abundance when the early settlers came to America. Full-sized oysters were planted in the harbor which was not polluted to any serious degree. The tidal flats were planted with sticks and brushwood, shells and tiles. When the old oysters spawned and the eggs developed into young, it was found that these various objects used as collectors were very effective in catching "seed" oysters. Birch brush planted in rows was covered with tiny oysters for a distance of two feet from the bottom. When the oysters attained a fair size they were transplanted to deep water beds in the sound.

Baskets made of wire or lath were filled with shells and set on the tidal flats in the vicinity of the spawning beds. These proved to be the cheapest and best collectors of all. Each of the shells on the top, bottom and sides of the basket were covered with tiny oysters and even those on the inside had some. Each bushel of shells caught about 15,000 young oysters. These were divided up and planted off shore where the young had ample room to grow.

How to give the young a chance to grow is only half the problem. The sanitary control of the industry has always been a serious question ever since the cities of the Atlantic seaboard discharged their waste materials into the coves and estuaries that once formed the natural oyster beds. Why the oysters in polluted beds contained more bacteria at one time of the year than at another was not clearly understood. Experiments by Dr. Galtsoff in New York showed that very few bacteria are retained by the gills when the oyster drinks its water, and that most of them pass on through the gill cavity.

The effect of temperature on the appetite of the oyster explains the fact that during the cold months oysters contain fewer bacteria than during the warm months. At the Woods Hole Experiment Station in Massachusetts recently Dr. Galtsoff built a special trap by means of which he measured the amount of water that flowed through an oyster's gills at any given time. At 77 degrees Fahrenheit he found that the oyster was most voracious of all and strained three-one-half and four quarts of sea water through its gills to collect the delectable bits that formed its food. At 48 degrees its appetite was reduced to zero and no water was taken in at all. When no water was taken in no germs could be taken in either. Below 41 degrees all motion in the oyster ceases, Dr. Galtsoff stated.

These facts about the oyster, such as the knowledge as to the cause of spawning, how to catch the infant oysters and distribute them when they are old enough, are expected by officials of the United States Bureau of Fisheries to solve the various practical problems that have hindered oyster farming and the sanitary control of the industry.

Science News-Letter, October 30, 1926

FORESTRY

Permits to Forest Tourists

Licensing travelers through forests, as a means of protecting Canada's timber wealth from the ravages of fire, is advocated by the Canadian Forestry Association. A forest is potentially almost as dangerous as a powder magazine and the issuance of travel permits is advocated, without which no one would be permitted to travel through any forest region during those seasons when there is danger from forest fires.

The formality of securing a permit would bring forcibly to mind the real dangers of forest fires, and, since a permit can be revoked, the possibility of forfeit of the permit would make the traveler careful.

Science News-Letter, October 30, 1926

BIOLOGY

NATURE RAMBLINGS

By Frank Thone

Everybody's Pets

If an animal "popularity contest" were to be staged, the choice among the wild folk of our woods would almost certainly light upon the deer. From the very earliest times deer have been praised for their delicate beauty, for the quiet dignity of their carriage, for the daintiness of their gait, not only by poets but by the very hunters who sought their lives.

When the white men first came to America, the woods of the region east of the Mississippi were full of one of the finest of all the species, the white-tailed or Virginia deer. It was a hard life that the Virginia deer had to lead, stalked as they were not only by Indians but by fierce predatory animals such as wolves and panthers. Yet they were holding their own against them all.

But the terrible gunpowder of the whites, that dispossessed the Indians and all but wiped out many of the native animals, took terrible toll of the deer population as well. And the white man's ax and plow swept away the wilderness and destroyed their natural home over vast stretches of territory. To a large extent this destruction was inevitable and even justifiable, for pioneering is rough work; it cannot spare the forest nor the forest's inhabitants, and it must have meat.

But the day of the pioneer and axman has long passed, and civilization is making amends to the deer of today for the wrongs wrought against their ancestors. Rigid closed seasons permit shooting only during a fortnight or a month, and strictly limit the size of the bag of any one hunter. More important still, man's pitiless war on the enemies of his domestic animals has practically wiped out the predatory animals, and the Indians have almost all departed from their ancestral hunting grounds. So that the deer are left in almost undisputed possession of the woods they once inhabited in trembling and fear. The meek have inherited the earth.

Science News-Letter, October 30, 1926

News-Letter Features

Born over four years ago, on March 13, 1922, of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the SCIENCE NEWS-LETTER has since proved interesting to laymen, scientists, students, teachers and children.

Into the pages of the NEWS-LETTER are fed the cream of *Science Service's* output directed at the newspapers of the world. To this is added material especially prepared.

Turn the pages and note:

It is a *separable* magazine. You can clip or tear out any article without losing or damaging another article on the other side.

Each article is automatically *indexed* by the key word printed above its heading. (See page 70 for explanation.)

Each article is automatically *dated* by its last line.

Books are *reviewed in brief* as they are received from the publishers.

The classics of science and striking passages from current books, addresses and periodicals are carefully selected and published.

Important *anniversaries* of science are appropriately noted week by week in a special department.

Regular articles tell of the happenings in the *skies* and in the great *outdoors*.

Photographs aid in the telling of the week's science.

Past Volumes

Nine volumes of the SCIENCE NEWS-LETTER have been issued in mimeographed form. Volume I consisted of numbers 50 to 90, inclusive, including the period March 13 to December 30, 1922; thereafter volumes consisted of 26 numbers covering half-year periods, with the exception of Volume IX which consisted of numbers 273 to 285, inclusive, and included the three-month period of July, August and September of this year. Volume X began with No. 286, the first to be printed, and will cover only the three last months of this year. Thereafter volumes will cover half-year periods. The pages in each volume will be numbered consecutively.

The color of the hair is furnished by the blood and is a pigment which contains iron and sulphur.

Los Angeles is attempting to cut down fire losses by maintaining two salvage companies as part of its fire department.

The SCIENCE NEWS-LETTER aims to be compact, not bulky, concise, not wordy. It values its quality more than its quantity.

Scandinavian housewives vary their table menus by using a number of sea products that are practically unheard of in this country.

A prominent South American doctor believes that leprosy may be carried by mosquitoes when the germs are in a leper's blood stream.

A long tailed scaly ant eater of Africa can wrap its armored tail around its body and roll like a ball away from danger if attacked.

Experiments have shown that seeds may sprout after being frozen for three days at a temperature of 427 degrees below zero, Fahrenheit.

GENERAL SCIENCE

Science or Sciences?

The old system of giving high school boys and girls courses in chemistry, physics, and biology merely in order that they may meet college entrance requirements is all wrong, in the opinion of Miss Louise Nichols, specialist in science teaching, of Philadelphia.

"A comparatively small percentage of high school graduates now go to higher institutions," says Miss Nichols, in a survey of the situation in Progressive Education. "The average student needs to have learned during his school years how science can assist him to better and fuller living rather than how it can assist him to pass a college entrance examination."

The newer method of teaching science, she explains, is to introduce the adolescent to science, rather than to special sciences. In the South Philadelphia High School, where she is head of the science department, students first study plants and animals, in which all boys and girls are interested, and also the scientific principles in everyday happenings.

From this, they advance to learning how elementary principles of science affect the life of a home and how they broaden and better the life and environment of a community. Students who take a fourth year of science are taught something of the influence of science on life in the past and future, including theories of evolution and heredity, and the changes in the earth's structure.

Courses in science should not only stimulate the imagination but should also develop habits of accurate observation and rigorous thinking, Miss Nichols declares.

Science News-Letter, October 30, 1926

GENERAL SCIENCE

Our Debt to the Past

The human mind enjoys today an enormous possession of ideas, heaped up, selected, sifted out by the centuries. The multitude of men have disappeared without contributing to this store a jot. Those who have had the fortune to add something, to leave something, should have their part in the glory and the recognition which is their due.—Bailly: *Histoire de l'Astronomie Moderne* .

Science News-Letter, October 30, 1926

Violet is one of the most difficult scents to produce artificially.

Science News-Letter, October 30, 1926

PHYSICS

Cicero on Gravitation

First let us examine the earth, whose situation is in the middle of the universe—solid, round, and conglobular by its natural tendency.

. . . What is most wonderful is that the world is so durable, and so perfectly made for lasting that it is not to be impaired by time; for all its parts tend equally to center, and are bound together by a sort of chain, which surrounds the elements; this chain is nature, which being diffused through the universe, and performing all things with judgment and reason, attracts the extremities to the center.

If, then, the world is round, and if on that account all its parts, being of equal dimensions and relative proportions, mutually support and are supported by one another, it must follow that, as all the parts incline to the center (for that is the lowest place of a globe, there is nothing whatever which can put a stop to that propensity, in the case of such great weights. For the same reason, though the sea is higher than the earth, yet because it has the like tendency, it is collected everywhere, equally concenters, and never overflows, and is never wasted.

The stars have their revolutions in the sky, and are continued by the tendency of all parts towards the center; their duration is perpetuated by their form and figure, for they are round; which form, as I think has been before observed, is the least liable to injury.—Cicero: *Nature of the Gods.*

Science News-Letter, October 30, 1926

ARCHÆOLOGY

First Aid to Readers

Quotations from a glossary of technical terms running serially in ART AND ARCHÆOLOGY, since June, 1926. Edited by Arthur S. Riggs.

Ab: in Egyptian mythology, the heart, which at death enters the spirit-world alone, to testify to the deeds of its former owner.

Acrolith: in Greek art, a statue with wooden body, stone head and extremities, and textile draperies.

Ael: in Norse mythology, the nectar the dead heroes quaff in Valhalla, served by Freya.

Mousterian: the name given to the fourth subdivision of Paleolithic man; also to artifacts of the type first discovered in the cave of Le Moustier in the Dordogne, France.

Mycenean era: the most ancient period of Greek art.

Petroglyph: a diagram, picture or inscription cut upon a rock.

Science News-Letter, October 30, 1926

First Glances at New Books

THE NATURAL HISTORY OF ANTS. By René Antoine Ferchault de Réaumur. Translated and annotated by William Morton Wheeler. New York. Alfred A. Knopf. 1926.

Written by one of the most remarkable scientists who ever lived, about one of the most remarkable of all insects, translated and edited by the foremost living authority on ants, this book stands as something really unique. The complete French text, hitherto unpublished, is printed, and the addition thereto of thorough-going biographical and scientific notes and a full bibliography of Réaumur's works make it as valuable to the student as its vividness and style make it interesting to the general reader.

AUTHORITATIVE STATEMENTS ON SCIENCE, EVOLUTION, RELIGION AND THE BIBLE. Compiled by Samuel S. Wyer. With Introduction by President Emeritus W. O. Thompson, Moderator, General Assembly, Presbyterian Church. Columbus. S. S. Wyer, 1014 Hartman Bldg.

A handy pamphlet consisting exclusively of quotations on the relations of religion and science by thinkers in both fields from Augustine to Fosdick and from Galileo to Millikan.

THE EVOLUTION OF THE HORSE, by Frederic B. Loomis, Boston. Marshall Jones Company. $3.00.

The history of the horse from "the little *Eohippus*" to *Equus*, "written so you can understand it," and blessed with brief but well-chosen chapter bibliographies.

LIBRARIES AND ADULT EDUCATION. New York. Macmillan Co. $2.50.

The report of the Commission on the Library and Adult Education of the American Library Association which for two years has been studying the question of how to reach a wider public with systematic and well selected reading. Contains methods, practical advice, lists of book lists and references to the literature and agencies. An indispensable guide for all librarians and educators who want to keep up with this expansion movement.

Science News-Letter, October 30, 1926

The most primitive peoples discovered have all known the use of fire.

Policemen in Cincinnati have been given pocket cameras so that they can take snapshots at the scene of a crime.

Science News-Letter, October 30, 1926

ANNIVERSARIES OF SCIENCE

November 5, 1581.—Galileo Galilei matriculated at the University of Pisa for the study of medicine. It was there, in that same year, that the swinging lamp started his study of the pendulum.

In 1581, this youth of seventeen stood in the Cathedral of Pisa. Close at hand, a lamp suspended by a long chain swung lazily in the air currents. There was nothing unusual in such a sight. Millions of other eyes had seen other suspended objects going through exactly this motion and had not given the sight a second thought. At this moment, however, a great discovery of far-reaching application . . . hung waiting in the air. Young Galileo took notice. The lamp swung to and fro, to and fro. Sometimes it moved but slightly. Again, as a stronger breeze blew through the great drafty structure, it swung in a considerable arc, but always —and this was the point which impressed itself upon the Italian lad—the swing was accomplished in exactly the same time. . . . In order to make sure of this fact, Galileo is said to have timed the swinging lamp by counting the beating of his pulse.

—Brearley: *Time Telling through the Ages.*

November 7, 1631.—First planetary transit ever observed. Pierre Gassendi saw the passage of Mercury across the sun.

Because of the great inclination of the orbit of Mercury, it is seen in a transit across the face of the sun not more than thirteen times in a hundred years. This transit may only be seen in a telescope. If it so happens that it travels across the center of the sun, the journey consumes about eight hours, although the little black dot is skimming across the big, bright disk at the rate of 100,000 miles an hour. The next five transits will occur on November 8, 1927; November 10, 1937, November 12, 1940; May 13, 1953, and November 6, 1960.

—Grondal: *The Music of the Spheres.*

November 10, 1887.—The first of Hertz' papers establishing the similarity between light and electric waves was presented before the Berlin Academy of Sciences.

In 1873 Maxwell, who was a prominent physicist, highly trained in the use of mathematical tools, announced that light was an electrical phenomenon and traveled as an electromagnetic wave. He further stated the possibility of there being other electromagnetic waves which would not produce the effect of light but would travel just as light waves travel.

In 1887 Hertz verified this prophecy of Maxwell and announced the discovery of electromagnetic waves. Hertz studied their properties or characteristics. He showed how they could be produced, how they traveled through the walls of buildings and were not affected by obstacles which would completely obstruct the passage of light, and also how they could be detected, since they do not affect the eyes as does light.

—Mills: *The Realities of Modern Science.*

November 10, 1911.—J. W. Nicholson communicated to the Royal Astronomical Society his deduction that four bright lines in the spectrum of gaseous nebulae might be due to an element unknown on earth. He named the hypothetical element Nebulium, and thought its atom to be made up of four negative electrons revolving about the nucleus.

The dream of the alchemist was to transmute one element into another, with the prime object of producing gold. Such transmutation has been actually accomplished within the last few years, but the process is invariably one of disintegration —the more complex elements being broken up into simpler constituents. Much remains to be done in this same direction; and here the stars and nebulæ, which show the spectra of the elements under a great variety of conditions, should help to point the way. The progressive changes in spectra, from the exclusive indications of the simple elements hydrogen, helium, nitrogen, possibly carbon, and the terrestrially unknown gas nebulium in the gaseous nebulæ, to the long list of familiar substances, including several chemical compounds, in the red stars, may prove to be fundamentally significant when adequately studied from the standpoint of the investigator of atomic structure.

—Hale: *The New Heavens.*

Science News-Letter, October 30, 1926

MEDICINE

New Leprosy Cure

The oil of a well known Brazilian tree has been found effective in the treatment of leprosy and not as painful for the patient as chaulmoogra oil, which has been used for centuries in leprosy cases in the Orient.

Dr. Antenor Machado, who has made a study of this new product, finds that it resembles chaulmoogra oil in many respects but that its acids have fewer methyl radicals which, he believes, are the chemical groups that have made chaulmoogra oil so dreaded as a medicine. The new oil has been used quite extensively of late in the treatment of leprosy, and the results have been eminently satisfactory, Dr. Machado says.

The tree from which the oil is obtained is known commonly as the sapucainha, and in botanical language as *Carpotrochea brasiliensis.* An extract made from it has long been used as a household remedy for skin diseases.

Science News-Letter, October 30, 1926

His sword and razor were usually buried with the Iron Age warrior in early Europe.

Science News-Letter, October 30, 1926

AGRICULTURE

Hog Cholera Epidemic

Serious outbreaks of hog cholera in the corn belt have been reported to the Department of Agriculture since the latter part of September. The epidemic has assumed such proportions throughout the whole central west, that all the field forces of Federal and State veterinarians have been called out to cope with the situation. Every precaution in the way of disinfection and quarantine to offset insufficient supplies of serum is being exercised to hold the epizootic in check.

The economic loss is being felt the most in the sections where the crops have failed due to recent droughts or storms and the farmers are depending in consequence on the proceeds of the sale of porkers to tide them over the winter.

The epidemic in the central west assumed such serious proportions that the U. S. Department of Agriculture issued notice to its inspectors to release preventive serum untested to immunize what hogs have not already succumbed.

Practically all hog cholera serum made in the United States is manufactured under government supervision and is not sent out under normal circumstances until it has been submitted to a period of rigorous testing requiring about three weeks. In the face of the serious epizootic raging in the corn belt this period was shortened to eleven days until the gravity of the situation forced officials in the Bureau of Animal Industry to dispense with the tests altogether in order to save precious time.

The magnitude of the present epidemic which is the worst the country has known in the last 12 or 15 years is attributed by the Department of Agriculture to the low ebb of the disease in recent years. Swine farmers have fallen out of the custom of immunizing their hogs with the preventive serum and since the demand was slight manufacturers have kept only small stocks on hand. The result has been large herds of susceptible animals through which the exceedingly contagious disease has swept.

Scarcity of immune pigs whose blood is a necessary constituent of the much desired serum is one handicap under which manufacturers are laboring. The new regulation, however, will make available at once enough serum to treat approximately 700,000 hogs and will continue effective as long as the emergency is considered to exist.

Science News-Letter, October 30, 1926